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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,543	03/17/2004	Gerard Hillion	PET-2130	2321
23599 7590 12/28/2009 MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201				
EXAMINER WARTALOWICZ, PAUL A				
ART UNIT 1793		PAPER NUMBER		
NOTIFICATION DATE 12/28/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@mwzb.com

### Office Action Summary

**Application No.**

10/801,543

**Applicant(s)**

HILLION ET AL.

**Examiner**

PAUL A. WARTALOWICZ

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Withdrawn Rejections***

The claim objections set forth in Office Action mailed June 24, 2009 are withdrawn. The antecedent basis rejections set forth in Office Action mailed June 24, 2009 are withdrawn. However, there are 35 USC 112, 2<sup>nd</sup> paragraph rejections set forth in this rejection in response to the amendment filed September 24, 2009.

### ***Response to Arguments***

Applicant's arguments filed 9/24/09 have been fully considered but they are not persuasive.

Applicant argues that the examples put forth in Applicant's disclosure illustrate the non-obviousness of the present claims.

However, the examples do not appear to be commensurate in scope with the claims. Example 7 seems to achieve the best crush strength and alumina gel is peptized *in situ*. None of the independent claims require that the alumina gel is peptized *in situ* (claim 1 requires that alumina is peptized before addition to the zinc mixture, claim 16 does not require that the alumina is peptized, claim 21 neither excludes nor requires that alumina is peptized first, the alumina gel limitation is being treated as an alumina gel having been peptized before addition to the mixture of zinc oxide, zinc nitrate, and nitric acid as discussed in the rejection, *infra*). Additionally, neither of examples 2 or 5 require that zinc nitrate, zinc oxide, water, *and* nitric acid are mixed before adding alumina gel (emphasis added). Claims 1 and 21 require mixing zinc nitrate, zinc oxide, water, *and* nitric acid before the addition of alumina gel. Claim

16 does require or exclude mixing zinc nitrate, zinc oxide, water, *and* nitric acid before the addition of alumina gel. Therefore, it appears that at least examples 2, 5, and 7 are not commensurate in scope with independent claims 1, 16, or 21.

Applicant argues that none of the examples of Khare use zinc nitrate and that it appears that all examples in Khare are apparently drawn to components being simultaneously combined with mixing.

However, it appears that Khare discloses that the alumina may be added to aqueous nitric acid, the zinc component may be added to acid, and then the two mixtures can be added together (this appears to meet the process steps of claim 1 and 21) (col. 1, lines 45-55, col. 2, lines 38-61, col. 3, lines 1-20), as discussed in the rejection, *infra*. That the examples do not teach this embodiment is not persuasive. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. MPEP 2123 (II). Additionally, Khare discloses zinc nitrate can be used. Zinc nitrate not being used in the examples of Khare is not persuasive for the same reasons discussed, *supra*.

Applicant argues that Dodwell, Walker and Anderson do nothing to remedy the above-noted deficiencies in of Khare.

However, Dodwell, Walker and Anderson are not relied upon to teach the order in which the starting materials are mixed. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references

individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation in claims 1, 16, and 21 of "calcining the extruded and dried paste in dry air" renders the claim indefinite. It is unclear what level of humidity is meant by "dry" air. Is it ambient air? Is it treated air with a lower humidity than ambient air? For the purposes of further examination, "dry" air is interpreted as ambient air with no added humidity.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 6, 7, 12-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khare (U.S. 5710091) in view of Dodwell (US 2003/0232723).

Khare teaches that the zinc component and alumina component can be added together to form a mixture, and then adding acid to that mixture of the zinc component and alumina component in a liquid medium (col. 1, col. 3). In the alternative, Khare teaches that the alumina may be added to aqueous nitric acid, the zinc component may be added to acid, and then the two mixtures can be added together (this appears to meet the process steps of claim 1 and 21) (col. 1, lines 45-55, col. 2, lines 38-61, col. 3, lines 1-20). The zinc component is a mixture of zinc oxide and zinc nitrate (col. 1, lines 45-55). Therefore, it appears that Khare teaches mixing zinc oxide and zinc nitrate together and then adding alumina to that mixture of zinc oxide and zinc nitrate in accordance with claims 1 and 21 and example 2.

Additionally, it appears that claim 21 recites mixing zinc oxide and zinc nitrate and nitric acid, prior to adding alumina gel. For purposes of examination, the alumina gel limitation is being treated as an alumina gel having been peptized before addition to the mixture of zinc oxide, zinc nitrate, and nitric acid.

Khare fail to teach the temperatures and time periods of stages a, b, and c.  
Khare also fail to teach the size of the extruding die.

Khare teaches a method of making zinc aluminate (col. 1) wherein a mixture of zinc oxide and zinc nitrate or zinc carbonate (col. 1) which is contacted with nitric acid (col. 2, 3) is combined with alumina peptized with nitric acid (col. 3) to form a paste (col. 3).

From this disclosure, it would have been obvious to one of ordinary skill in the art to provide operating conditions such as 30 to 60 minutes reaction time to form a mixture of zinc oxide with zinc nitrate or zinc carbonate and nitric acid as disclosed by Khare and 60 to 120 minutes of mixing time to form a paste of zinc compounds and peptized alumina (col. 2, 3) in Khare through routine experimentation so as to obtain a mixture and paste thoroughly mixed as taught by Khare.

Additionally, Khare teach that it is known to use a suitable means for mixing such as muller mixers and impact mixers as these are well known in the art to provide for thorough mixing (col. 3).

Khare teach that mixtures of zinc oxide and zinc carbonate or zinc nitrate can be used because these zinc compounds combine with alumina to form zinc aluminate (col. 1).

Khare recites that a mixture of zinc oxide, zinc nitrate, and zinc carbonate can be used (col. 1). Therefore, a mixture of zinc oxide, zinc nitrate, and zinc carbonate would result in a 0.33/0.33/0.33 ratio of zinc oxide/zinc nitrate/zinc carbonate in accordance with claimed the claimed proportion of substitution of zinc oxide by an equivalent amount of zinc nitrate.

Khare fail to teach that the mixture of zinc compounds and alumina is extruded, but instead forms a paste that is spray-dried (col. 3).

However, Dodwell teaches a method of making a zinc aluminate absorbent [0015] wherein it is known to form a paste and extrude the paste into a shape based on the end use of the product [0026].

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide for an extrusion step in place of the spray drying step in Khare based upon the end use of the product [0026] as taught by Dodwell.

Additionally, Dodwell teaches that the shaped support is subsequently dried at a temperature of 80-143°C and then calcined at a temperature of 204-982°C for 1-60 hours [0027, 0028].

Therefore, it would have been obvious to one of ordinary skill in the art to provide drying at a temperature of 80-143°C in air and calcination at a temperature of 204-982°C for 1-60 hours [0027, 0028, 0073] in Khare in order to produce a zinc aluminate in a substantially similar process as taught by Dodwell.

Additionally, regarding claims 1, 16, and 21; it appears that Dodwell teaches calcining in a muffle furnace in air [0073]. Therefore, it appears that Dodwell teaches calcining in "dry" air as it does not appear that any water vapor has been added to the calcining atmosphere.

Regarding claim 13, it appears that Dodwell teaches the temperature range for calcining (204-982°C) and calcining time (1-60 hours) such that one of ordinary skill in



the art would determine the drying times at different temperatures of claim 11 through routine experimentation.

As to the limitation wherein stage (c) consists in extruding the paste that is thus obtained from a die with a diameter of between 1.5 and 3.7 mm of diameter, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide extruding paste that is thus obtained from a die with a diameter between 1.5 and 3.7 mm of diameter in order to obtain a size desirable for the end use of the product. Changes in size would have been obvious to one of ordinary skill in the art. *In re Rose* 105 USPQ 237 (See MPEP 2144.04).

Regarding claims 14, 15, and 19, it appears that the prior art teaches a substantially similar process as that of the claimed invention such that the product produced by the prior art process is substantially similar to the product of the claimed invention, including properties of the product produced.

Claims 5, 10, 11, 14, 15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khare (U.S. 5710091) in view of Dodwell (US 2003/0232723) and Walker (U.S. 4370310).

Khare teaches a method as described above in claim 1.

Khare fails to teach the reaction temperature, heating the extrudate in a ventilated oven.

Walker teaches a method of making zinc aluminate (col. 1) wherein it is known to react zinc oxide with alumina at elevated temperatures (col. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a temperature of 60-65°C in Khare because it is known in the art of producing zinc aluminate to react zinc oxide and alumina at elevated temperatures and that the reaction temperature could be readily determined through routine experimentation.

Walker teaches a process for making zinc aluminate (col. 1) wherein a paste of zinc oxide and alumina hydrate are dried in a forced draft oven (col. 3) depending on the size of the extrudate or other physical shape in which the paste has been formed (col. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the claimed drying conditions of the extrudate in Khare because it is known to vary the drying conditions (col. 2) of the extrudate based upon size and shape as taught by Walker.

Additionally, it appears that Dodwell teaches the temperature range for drying (80-143°C) and drying time (1.5-20 hours) such that one of ordinary skill in the art would determine the drying times at different temperatures of claim 11 through routine experimentation.

Additionally, such variance of drying conditions is a result of routine experimentation in the absence of unexpected results.

Regarding claims 14, 15, and 19, it appears that the prior art teaches a substantially similar process as that of the claimed invention such that the product

produced by the prior art process is substantially similar to the product of the claimed invention, including properties of the product produced.

Claims 8, 9, 14, 15, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khare (U.S. 5710091) in view of Dodwell (US 2003/0232723) and Andersen (U.S. 5830305).

Khare teaches a process as described above in claim 1.

Khare fails to teach the pressure at which the paste is extruded.

Regarding the limitation wherein a pressure of higher than 2 MPa is exerted on the die so as to obtain compact extrudates that have a flawless surface condition and wherein at the end of operation the pressure again becomes less than 2 MPa, the recovered extrudates are not preserved, Andersen teaches wherein it is well known to impart pressure on dies of from 50 psi to 20000 psi for the purpose of maximizing strength and structural intensity (paragraph 253, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide pressure on dies of from 50 psi to 20000 psi in Khare in order to maximize strength and structural intensity (paragraph 253, lines 1-12) as taught by Anderson.

Regarding the limitation wherein the recovered extrudates are not preserved, it would be obvious to not impart pressure on dies at the above mentioned pressures if the desired effect was to not impart strength and structural intensity as taught by Andersen.

Regarding claims 14, 15, and 19, it appears that the prior art teaches a substantially similar process as that of the claimed invention such that the product produced by the prior art process is substantially similar to the product of the claimed invention, including properties of the product produced.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz  
December 20, 2009

/Stanley Silverman/  
Supervisory Patent Examiner, AU 1793